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**Principal treatment processes for WPS1**

Wastewaters are classified in three groups: Chrome bearing, non-chrome bearing and cyanide bearing. The wastewaters are treated as follows:

**Cyanide bearing wastewaters:** All wastewaters from cyanide processes are collected in a Cyanide pit. The waters are then pumped to a cyanide destruct tank, where the pH and ORP are controlled to convert the cyanide to cyanate and then the pH is lowered and the ORP is raised to convert the cyanate to carbon dioxide and nitrogen. The cyanide is confirmed destroyed by a cyanide test kit. The treated wastewater then flows to the non-chrome bearing pit and it mixes with all the other non-chrome bearing wastewaters.

**Chrome Bearing:** All wastewaters containing chrome flow to the waste treatment area by gravity or are pumped. The chrome bearing wastewaters come together in a 600 gallon pit and are pumped to a chrome reduction tank, T2. The hexavalent chrome is reduced using sodium metabisulfite and is controlled by a ORP controller and a pulse control metering pump. The treated chrome wastewaters are now in the trivalent form and flow to the Primary Neutralization tank T5 for hydroxide precipitation.

**Non Chrome:** All wastewaters not containing chrome or cyanides flow to waste treatment area pit by gravity or are pumped. Wastewaters are then pumped to Primary Neutralization tank T5 where the pH is raised to 6.5 pH using 50% sodium hydroxide solution. The wastewaters then gravity flow to Final Neutralization tank T6 where pH is adjusted to 8.5 pH using 50% sodium hydroxide solution. The wastewaters then flow to tank T7 where they are pumped through a 0.3 micron microfiltration system. The treated wastewater is monitored for pH and metals and flows out to the Plymouth POTW. The rejected metal hydroxide waste is pumped to tank T4 for settling and from T4 to a sludge press for dewatering. The resulting cake sludge is placed in a 30 yard container and is sent to Enviroline of Pennsylvania as a hazardous waste.